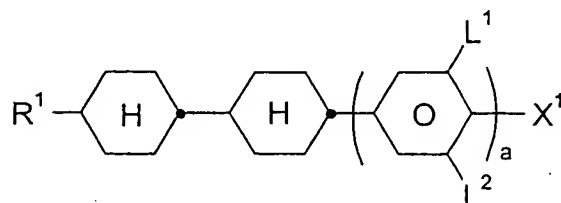
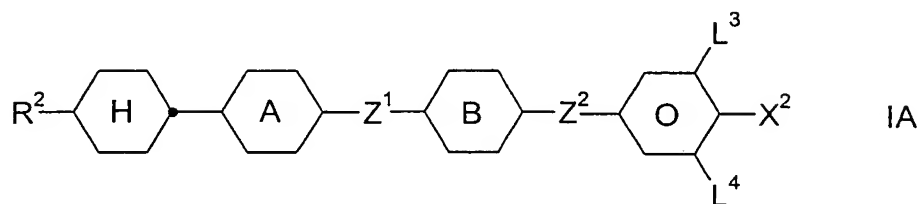


# Patent Claims

1. Liquid-crystalline medium based on a mixture of polar compounds of positive dielectric anisotropy, characterised in that it comprises one or more compounds of the formula I



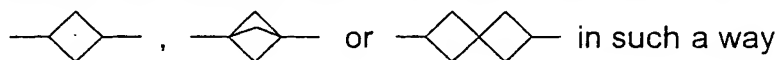
and one or more compounds of the formula IA



where the proportion of the compounds of the formula I in the medium is at least 18% by weight, and in which the individual radicals have the following meanings:

$R^1$  is an alkenyl radical having from 2 to 8 carbon atoms,

$R^2$  is H, an alkyl radical having from 1 to 15 carbon atoms which is halogenated, substituted by CN or  $CF_3$  or unsubstituted, where, in addition, one or more  $CH_2$  groups in these radicals may each, independently of one another, be replaced by  $-C\equiv C-$ ,  $-CO-$ ,  $-CH=CH-$ ,  $-O-$ ,



in such a way that O atoms are not linked directly to one another,

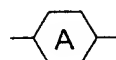
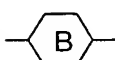
$X^1$  is an alkyl radical, alkenyl radical, alkoxy radical or alkenyloxy radical, each having up to 6 carbon atoms, in

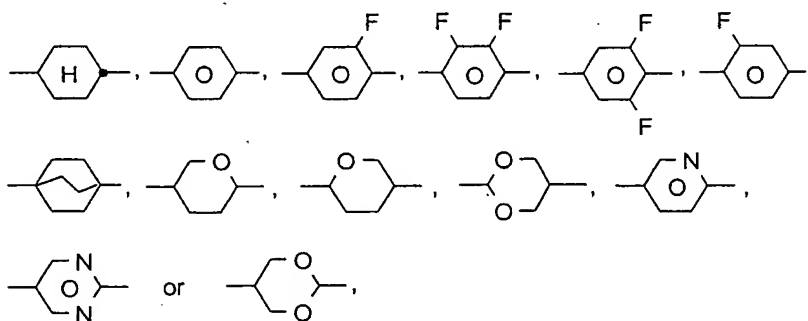
the case where  $a = 1$  also F, Cl, CN, SF<sub>5</sub>, SCN, NCS or OCN,

$X^2$  is F, Cl, CN, SF<sub>5</sub>, SCN, NCS, OCN, a halogenated alkyl radical, halogenated alkenyl radical, halogenated alkoxy radical or halogenated alkenyloxy radical, each having up to 6 carbon atoms,

$Z^1$  and  $Z^2$  are each, independently of one another, -CF<sub>2</sub>O-, -OCF<sub>2</sub>- or a single bond, where  $Z^1 \neq Z^2$ ,

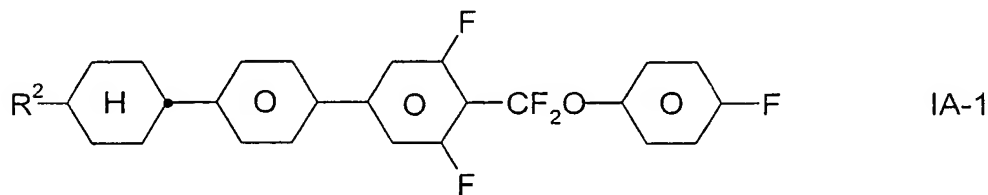
$a$  is 0 or 1, and

 **A** and  **B** are each, independently of one another,

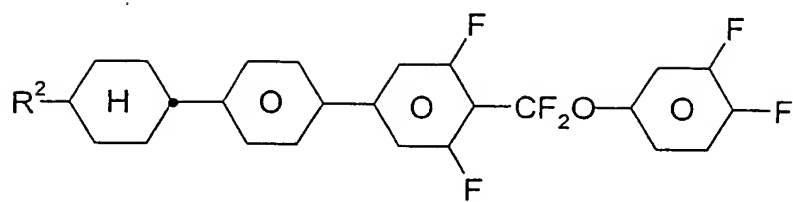


$L^{1-4}$  are each, independently of one another, H or F.

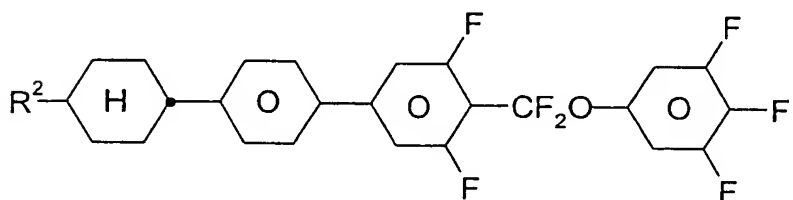
2. Liquid-crystalline medium according to Claim 1, characterised in that it comprises one, two or more compounds of the formulae IA-1 to IA-30



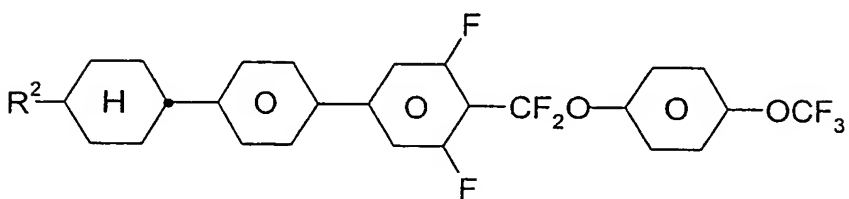
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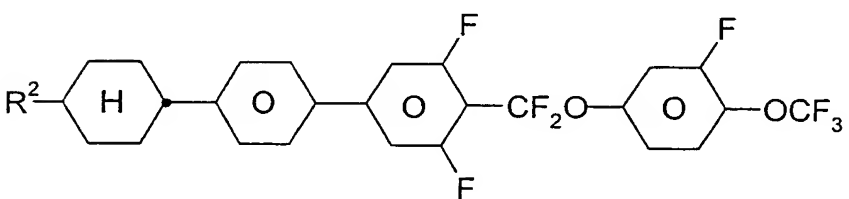
IA-2



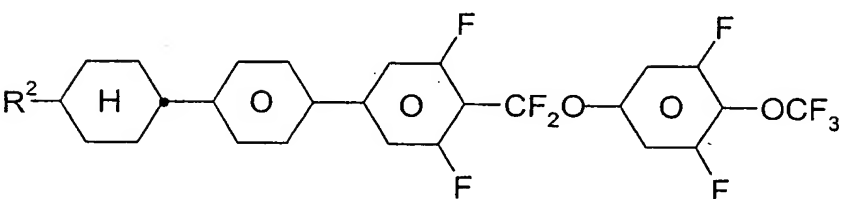
IA-3



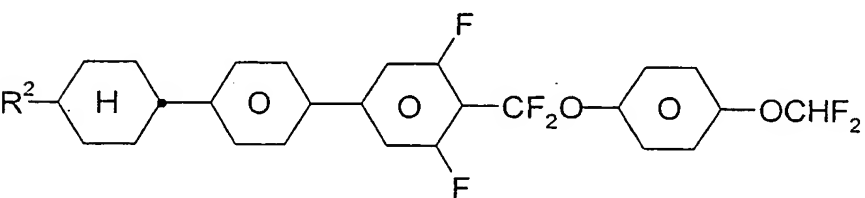
IA-4



IA-5

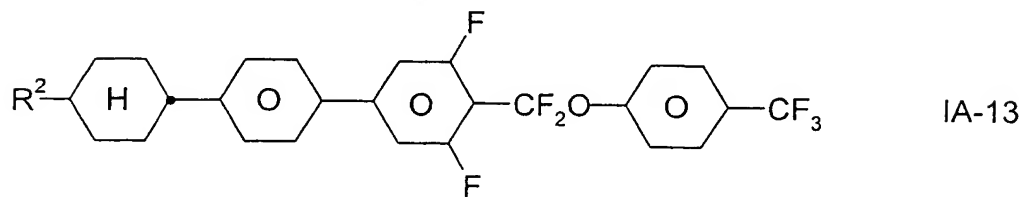
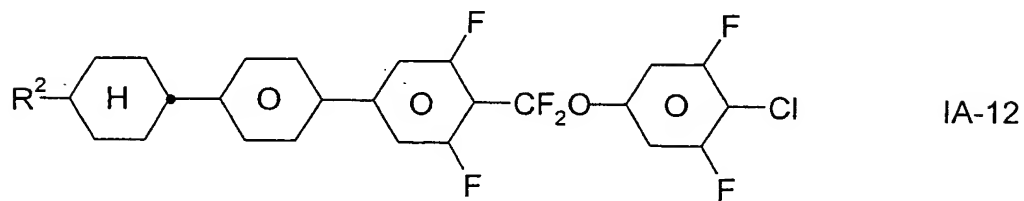
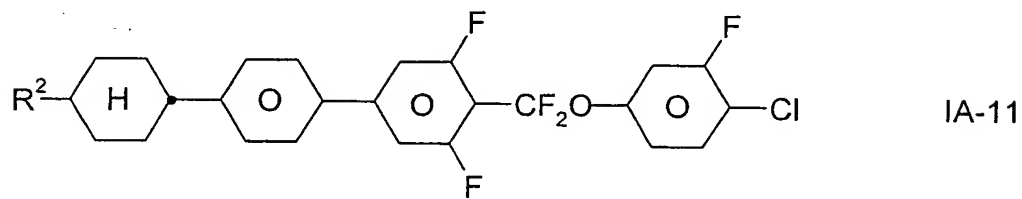
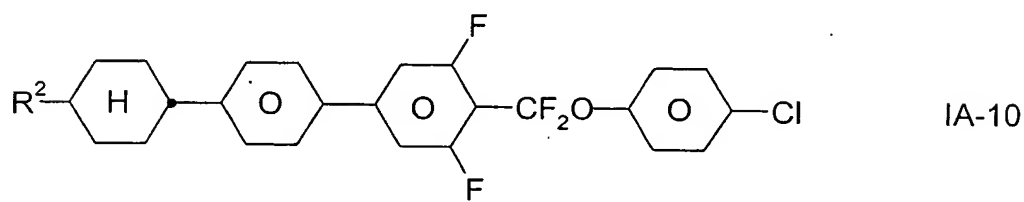
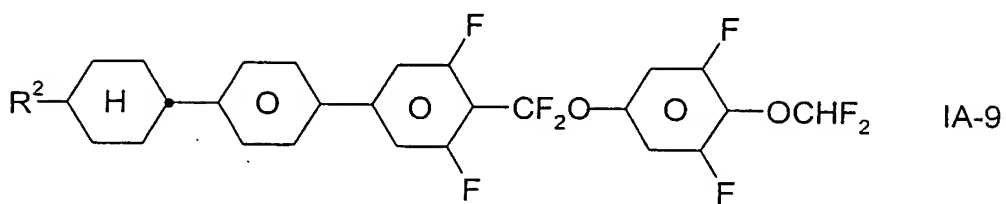
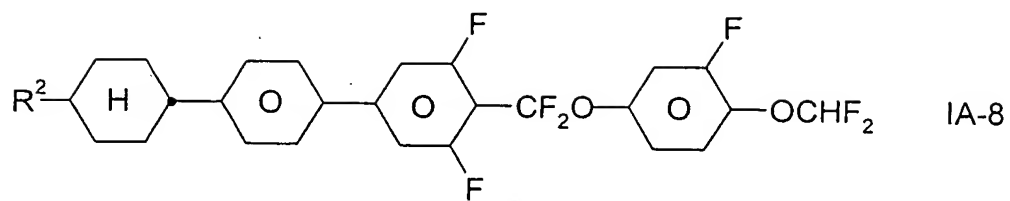


IA-6



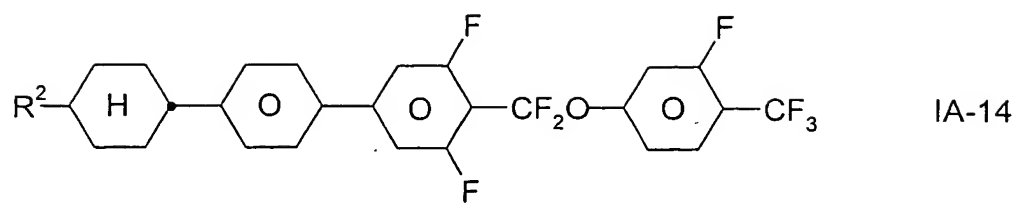
IA-7

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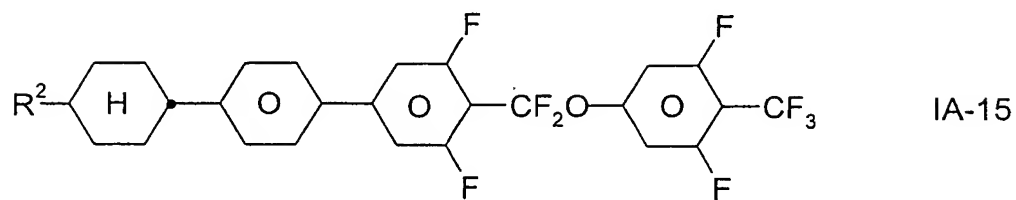


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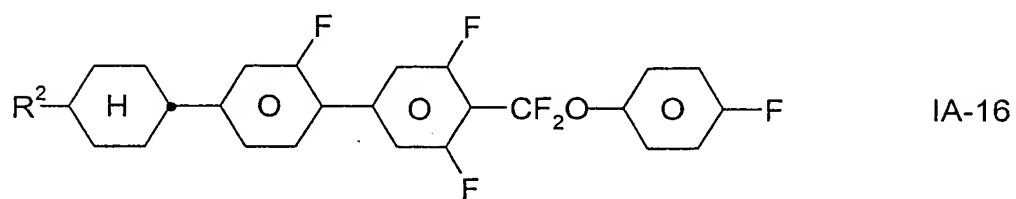
- 74 -



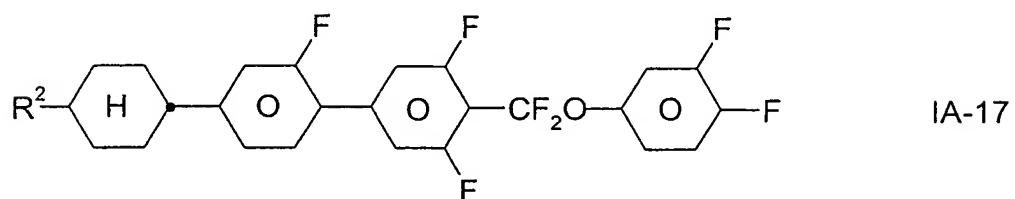
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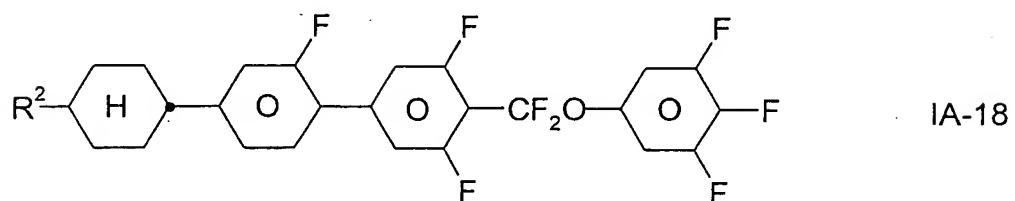
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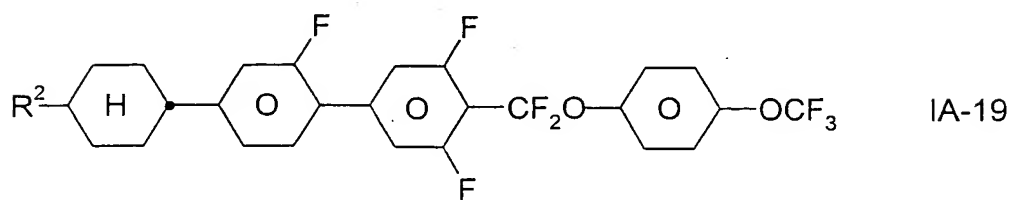
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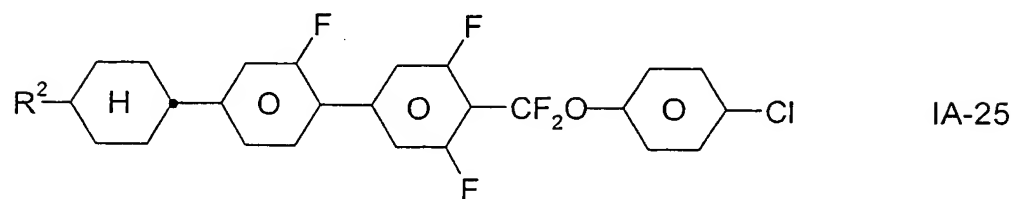
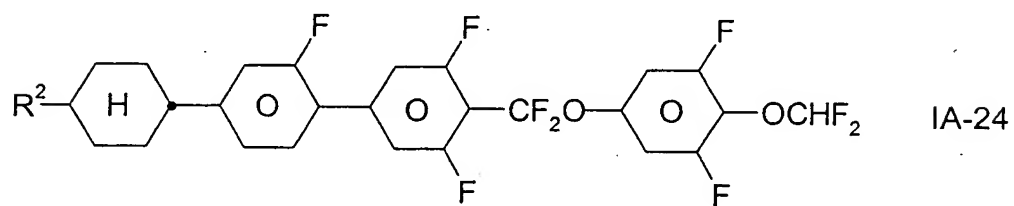
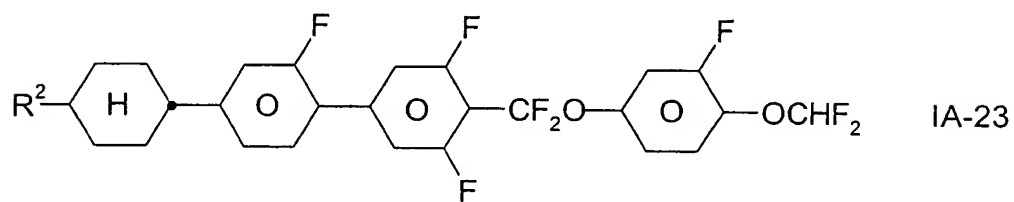
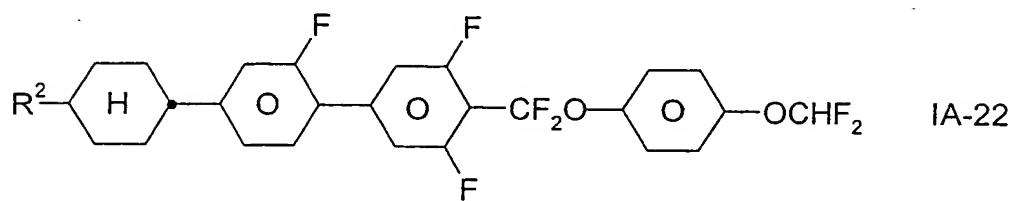
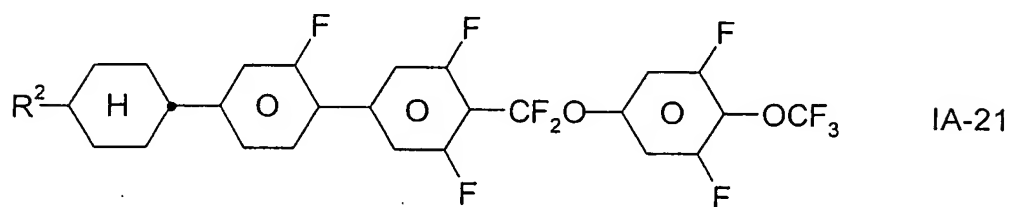
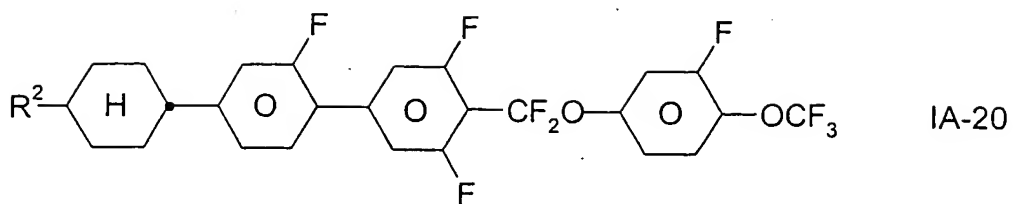
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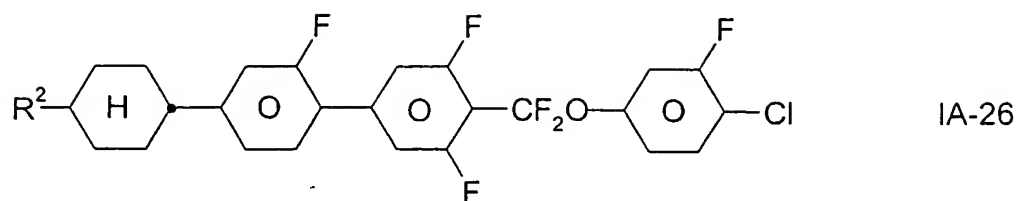
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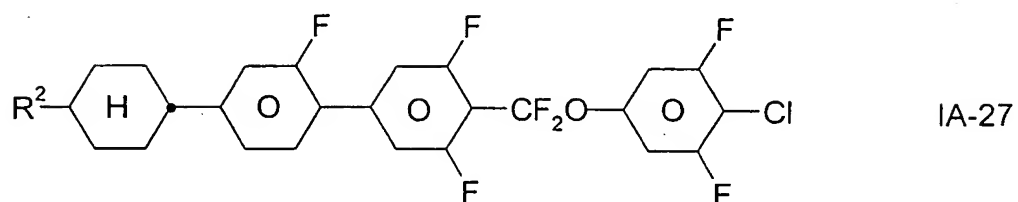
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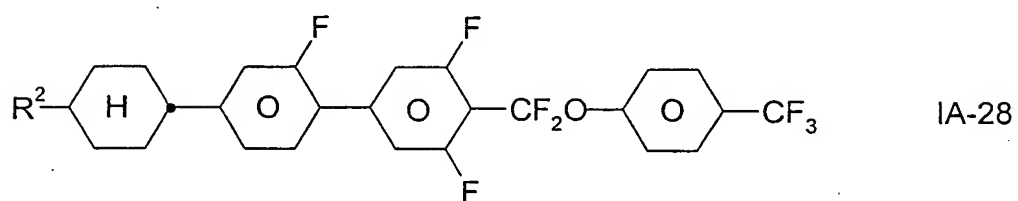
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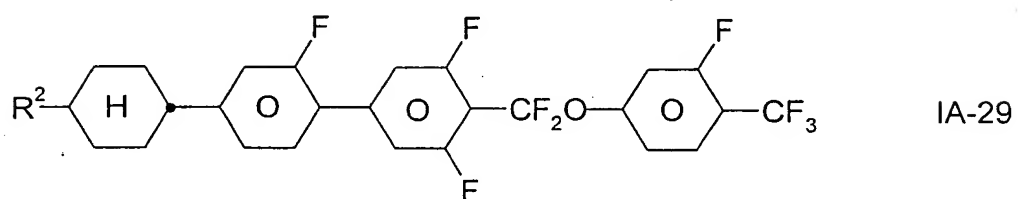
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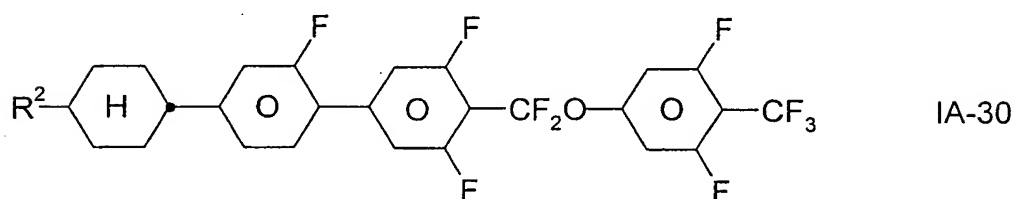
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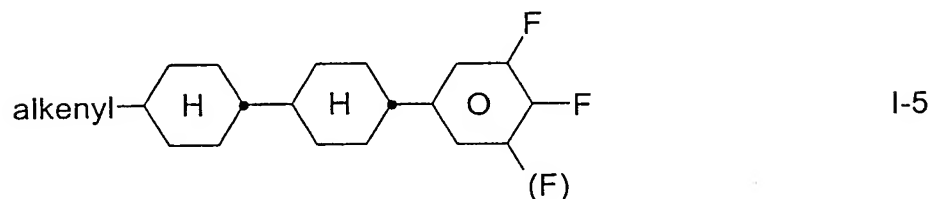
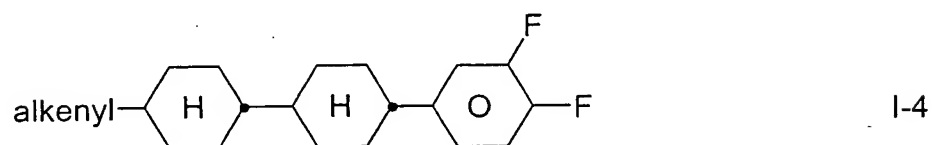
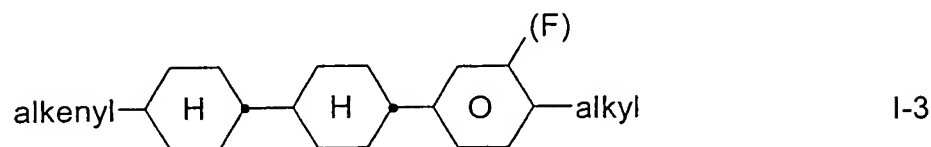
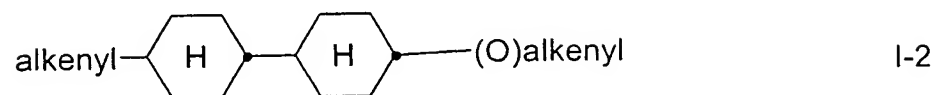
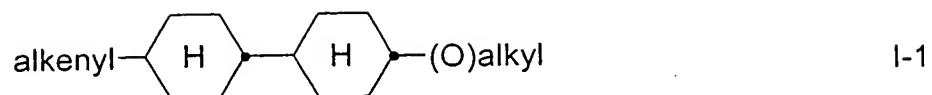
in which R<sup>2</sup> is as defined in Claim 1.

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3. Liquid-crystalline medium according to Claim 1 or 2, characterised in that it comprises one or more compounds of the formulae I-1 to I-5

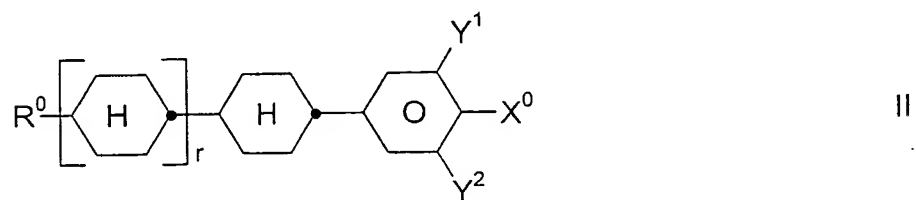
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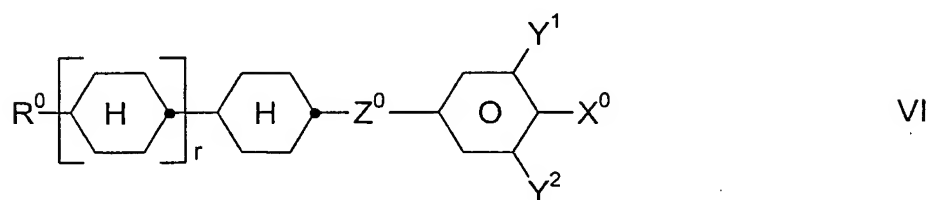
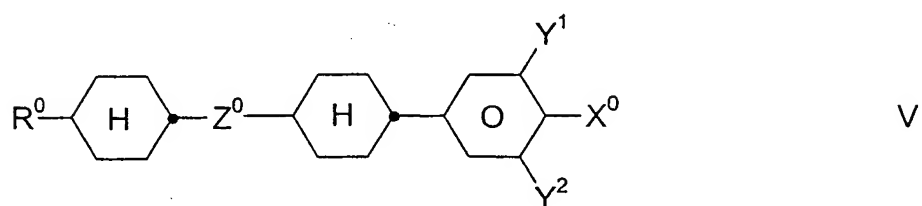
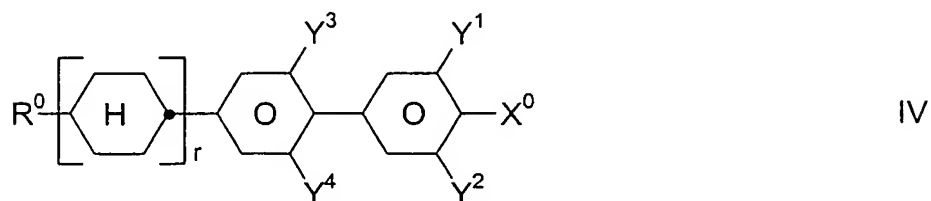
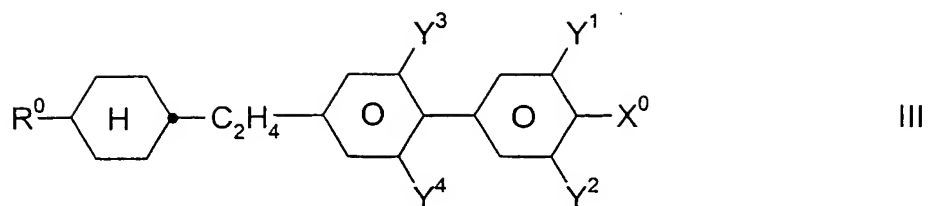
in which alkenyl is an alkenyl radical having from 2 to 8 carbon atoms and alkyl is a straight-chain alkyl radical having 1-15 carbon atoms.

4. Liquid-crystalline medium according to one of Claims 1 to 3, characterised in that it additionally comprises one or more compounds selected from the group consisting of the general formulae II, III, IV, V and VI





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in which the individual radicals have the following meanings:

$R^0$  is H, n-alkyl, alkoxy, oxaalkyl, fluoroalkyl, alkenyloxy or alkenyl, each having up to 9 carbon atoms,

$X^0$  is F, Cl, halogenated alkyl, alkenyl, alkenyloxy or alkoxy having up to 6 carbon atoms,

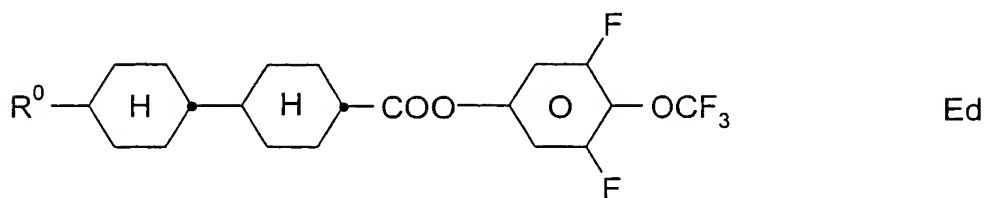
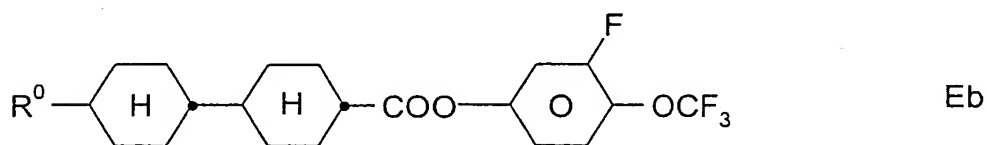
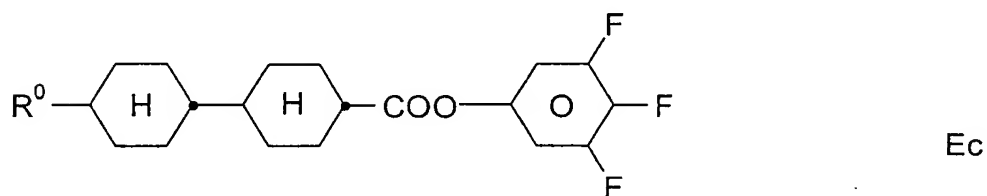
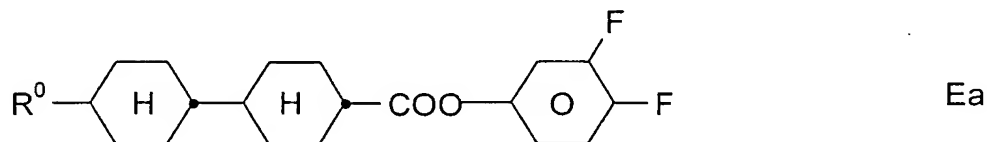
$Z^0$  is  $-C_2F_4-$ ,  $-CF=CF-$ ,  $-CH=CF-$ ,  $-CF=CH-$ ,  $-C_2H_4-$ ,  $-CH=CH-$ ,  $-O(CH_2)_3-$ ,  $-(CH_2)_3O-$ ,  $-(CH_2)_4-$ ,  $-CF_2O-$ ,  $-OCF_2-$ ,  $-OCH_2-$  or  $-CH_2O-$ ,

$Y^{1-4}$  are each, independently of one another, H or F,

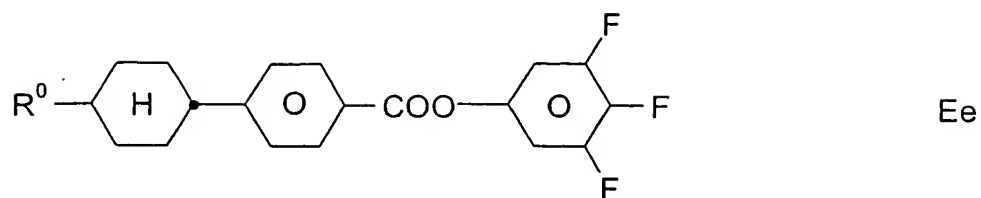
$r$  is 0 or 1,

and the compound of the formula II is not identical with the compound of the formula I.

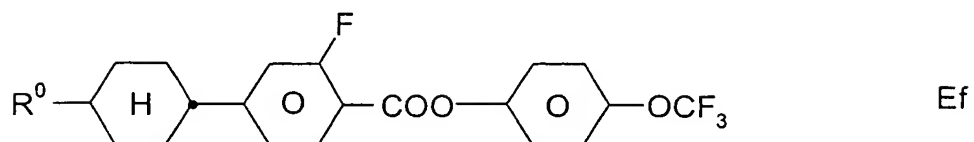
5. Liquid-crystalline medium according to Claim 4, characterised in that the proportion of compounds of the formulae IA and I to VI together in the mixture as a whole is at least 50% by weight.
6. Liquid-crystalline medium according to one of Claims 1 to 5, characterised in that it additionally comprises one or more compounds of the formulae Ea to Ef



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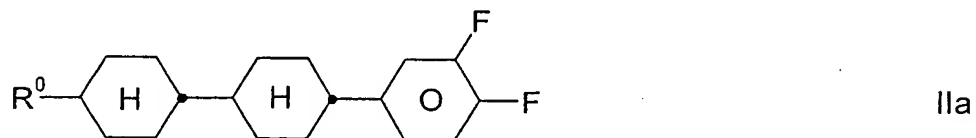


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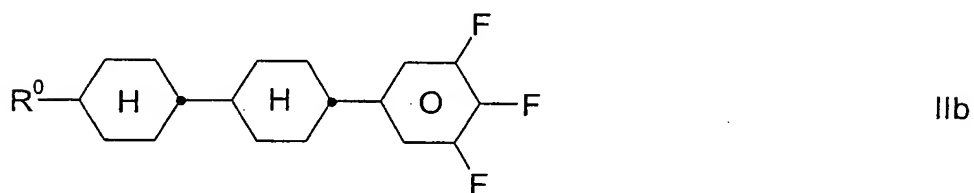
in which  $R^0$  is as defined in Claim 4.

7. Liquid-crystalline medium according to one of Claims 1 to 6, characterised in that it comprises one or more compounds of the formulae IIa to IIg

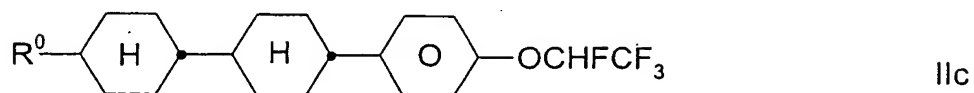
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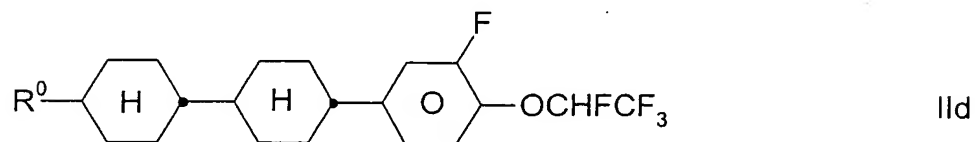
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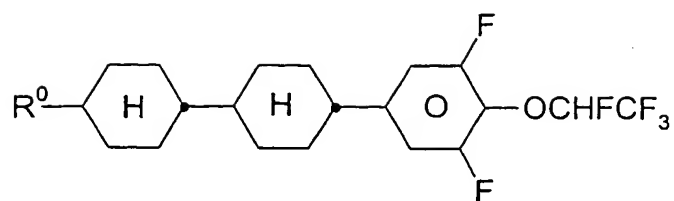


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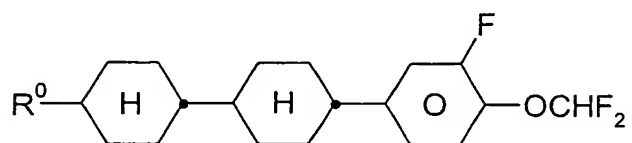
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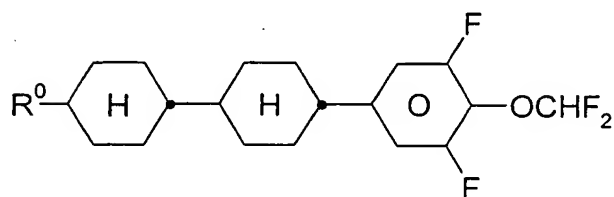
IIe

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IIIf

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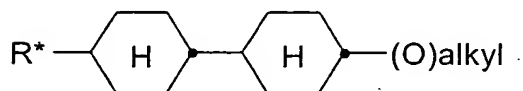
IIg

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in which  $R^0$  is as defined in Claim 4.

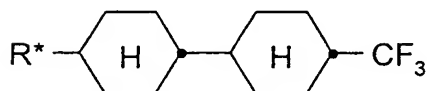
8. Liquid-crystalline medium according to one of Claims 1 to 7, characterised in that it additionally comprises one or more compounds of the formulae RI to RVII

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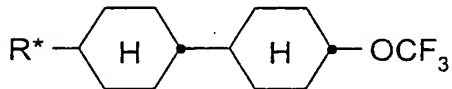
RI

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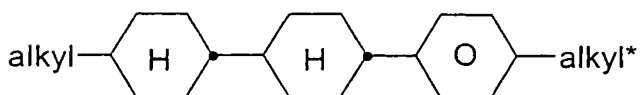


RII

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RIII

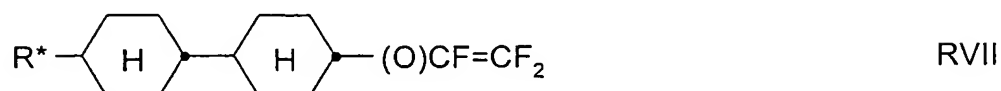
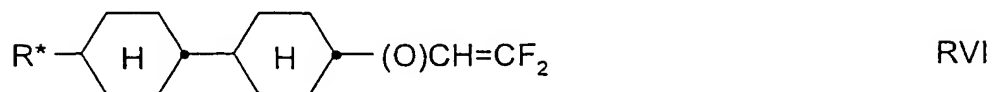


RIV

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5



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in which

R\* is n-alkyl, alkoxy, oxaalkyl, fluoroalkyl or alkenyloxy, each having up to 9 carbon atoms, and

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alkyl and alkyl\* are each, independently of one another, a straight-chain or branched alkyl radical having 1-9 carbon atoms.

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9. Liquid-crystalline medium according to one of Claims 1 to 8, characterised in that the proportion of compounds of the formula IA in the mixture as a whole is from 5 to 40% by weight.

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10. Use of the liquid-crystalline medium according to Claim 1 for electro-optical purposes.

11. Electro-optical liquid-crystal display containing a liquid-crystalline medium according to Claim 1.

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